

METRO STATION ENTRANCE CANOPIES SYSTEMWIDE

Report to the Washington Metropolitan Area Transit Authority

December 6, 2001

Abstract

The Washington Metropolitan Area Transit Authority (WMATA) has submitted a design concept for the installation of new canopies over exposed escalators at 53 locations throughout the Metrorail system. The purpose for these canopies is to resolve a code compliance issue that resulted from changes to the escalator code as well as to shield WMATA customers from rain and snow while protecting WMATA escalators from the elements. The design concept presented in this proposal is the result of a design competition held by WMATA.

Authority

Washington Metropolitan Area Transit Authority Compact, Public Law 100-285 of 1988 (D.C. Code, sec. 1-2431), DC Code, sec. 5-432 and Section 5 of the National Capital Planning Act of 1952, as amended (40 U.S.C. 71d).

Commission Action

The Commission:

- **approves** the design concept for the installation of Metro Station Entrance Canopies over exposed escalators throughout the Metrorail system, as shown on NCPC Map File No. 1000.00(46.00)-40985, provided that:
 - Wind tunnel tests be conducted to see what impact, if any, winds coming from various directions and at various velocities have on the underground entrances to Metro stations, especially with regard to increasing the velocity of air currents traveling up and down the escalator passageways;
 - The glass panels proposed for lining the roofs of the canopies be designed in such a way that, if broken, they can be easily and quickly replaced;

- Further consideration be given to a more systematic approach to keeping the panels clean; and
 - Adequate identification signs be displayed to direct passengers as they approach Metro stations.
- **Strongly recommends** that prototypes be erected at several locations and tested for several months before the construction of other canopies proceeds.

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BACKGROUND AND STAFF EVALUATION

DESCRIPTION OF PROPOSAL

Background

WMATA has submitted a design concept for the installation of canopies over exposed escalators at various locations throughout the Metrorail system. The comprehensive escalator canopy program began in the second quarter of 1998. Approximately 18 months ago the WMATA Board of Directors passed a resolution that approved a program providing for the installation of the canopies. The purpose for the installation of these canopies is to resolve a Code compliance issue resulting from changes to the escalator code, which requires that all exterior escalators be enclosed. The canopies will also shield WMATA customers from rain and snow while protecting the escalators from the elements, a major cause of down time for repairs.

On February 9, 2001, WMATA staff initiated a two-stage open design competition. From this competition, 167 design proposals were received and from this group, 22 were considered viable for further review. Following this review, three finalists were chosen and on July 19, 2001, the WMATA Board selected the design that is now before the Commission.

WMATA advises that the two Metro Stations at Arlington Cemetery will not receive the new canopies and four stations will have a specially modified design that draws its essence from the concept design. The four stations that will have the modified design include Judiciary Square, Navy Memorial, Dupont Circle North, and Smithsonian. WMATA further advises that it will submit the preliminary and final site and building plans for those canopies that are within the Commission's jurisdiction.

Design Concept

The design concept provides for a cambered vault of steel and glass supported by steel trusses. The form is intended to be reminiscent of the coffered ceiling vault of the interior of the Metro stations. The canopy framing is comprised of arched longitudinal and transverse steel tube members, forming a visual coffered grid. The framework is supported above the escalator opening by tempered diagonal steel struts that are mounted with steel plinth blocks to the top of the existing parapet walls. The composition of the side wall and rear wall diagonal trusses act

together as a vierendeel truss diaphragm to support the canopy vertical loads as well as provide lateral stability.

The glazing system is comprised of aluminum framing members, and modular glass panels rest upon the canopy's structural grid framework. The lighting fixtures will be mounted on the longitudinal beams above the side parapet walls and will illuminate and highlight the canopy interior framework. Fixtures above the exterior of the canopy sidewalls are directed down to light the diagonal struts, the parapet wall, and the ground plane beneath the canopy overhang. The light source will be metal halide to meet WMATA's lighting standards.

Station identification is provided on the exterior leading edge of the side rim beams at the front of the canopy. Stainless steel letters and graphics will be backlit for night viewing. Color-coded circles will indicate the lines serving the station.

EVALUATION

Staff is very supportive of the design concept and recommends approval. The cambered vault of steel and glass will serve as both an icon of Washington's Metro system and as a gateway to the city. The proposed structure is invitingly light and airy as it reveals the expansive sky by day and serves as a beacon at night. The proposed lighting is intended to provide a soft "glow" rather than a harsh light. The overall form of the canopy—sculptural and dynamic—provides a visual connection to Metro's existing underground coffered vaults. As WMATA refines the design concept into preliminary site and building plans, care should be given to incorporating signage. While signage should provide instruction and direction for consumers, it should not detract from the simplicity of the canopy form. As mentioned, WMATA will submit the preliminary and final plans for Commission review as necessary.

COORDINATION

Coordinating Committee

The Coordinating Committee reviewed this item at its meeting on November 14, 2001, and forwarded the proposal to the Commission with the statement that the project has been coordinated with all agencies participating. The participating agencies were NCPC; the District of Columbia Office of Planning; the Fire Department; the Department of Public Works; the General Services Administration; and the Washington Metropolitan Area Transit Authority.

Commission of Fine Arts

At its November 15, 2001 meeting, the Commission of Fine Arts reviewed and approved the design concept for the canopies.

CONFORMANCE

Comprehensive Plan

The proposed Metro canopies would provide significant protection to presently exposed escalator systems from the corrosive effects of the elements and would reduce the amount of costly maintenance needed as well as the down time of these systems. This would improve the operational efficiency and cost effectiveness of the overall Metrorail system. The proposal is consistent with the intent of the Comprehensive Plan for federal workers to use mass transit to the maximum extent possible in commuting to and from their workstations.

National Historic Preservation Act

WMATA has consulted with all three affected state historic preservation offices. The Virginia and Maryland SHPOs concurred with WMATA that the construction of the proposed canopies would have No Adverse Effect on historic resources adjacent to the Metro stations in their jurisdictions. The District of Columbia SHPO also concurred with that assessment in general, but requested that its office be consulted further as design development progressed so that the proposed canopies for stations within historic districts could be reviewed by the staff.

National Environmental Policy Act

Pursuant to the regulations implementing the National Environmental Policy Act (NEPA), the Commission will require, pursuant to its submission requirements, completed environmental review of the preliminary and final project site-specific implementation design when it is developed.

The submission is a conceptual presentation of the WMATA Board of Directors' preference for implementation and is being made available to the Commission for comment in accordance with the WMATA Compact, PL 100-285 of 1988 (D.C. Code Sec. 1-2431). Consequently, further design development of the project will be covered by the Commission's future review of the project, including specific design and any potential environmental matters at specific selected WMATA Metro Stations.